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FOREST SURVEY RELEASE NO. 9

MAY 15, 1941

THE DISTRIBUTION OF COMMERCIAL FOREST TREES
IN SOUTH CAROLINA

by

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A FOREST SURVEY PROGRESS REPORT



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Appalachian Forest Experiment Station
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PREFACE

Through the McSweeney-McNary Act of 1928, Congress authorized the Secretary of Agriculture to conduct a comprehensive survey of the forest resources of the United States. The Forest Survey was organized by the Forest Service to carry out the provisions of the Act, and each of the 12 Regional Forest Experiment Stations is responsible for the work in its territory. In the Middle Atlantic States the Forest Survey is an activity of the Appalachian Forest Experiment Station, Asheville, North Carolina.

The work of the Survey is divided into 5 major phases:

1. Inventory. Determination of the extent, location, and condition of forest lands, and the quantity, species, and quality of the timber on these lands.
2. Growth. Determination of the current rate of timber growth.
3. Drain. Determination of the amount of industrial and domestic wood use, and the total loss resulting from fire, insects, disease, suppression, and other causes.
4. Requirements. Determination of the current and probable future requirements for forest products by all classes of consumers.
5. Policies and plans. Analysis of the relation of these findings to one another and to other economic factors as a basis for public and private policies and plans of forest land use and management.

This progress report presents information on one part of the inventory phase of the Survey and deals specifically with the geographic distribution of the more important commercial forest trees in South Carolina.

The report is made possible through the assistance received from the personnel of the Work Projects Administration. Particular credit is due Mr. W. H. Winston and Mr. Harry Watkins of the Work Projects staff. The preparation of the maps from the basic field data were official projects 765-32-3-3 and 165-2-32-94.

Assisting Survey Staff

G. E. Morrill) Preparation of
T. C. Evans) Tables of Volume

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THE DISTRIBUTION OF COMMERCIAL FOREST TREES IN SOUTH CAROLINA

PURPOSE OF REPORT

The geographic distribution of the species of forest trees and their sizes is of considerable economic importance to the wood-using industries. The ordinary forest type maps are valuable for many purposes but for industrial use maps are needed which show where certain species and tree sizes are most abundant. Established plants must know the location of areas with suitable timber supplies and prospective wood-using industries need the same information in order to select desirable locations.

The maps included in this report are designed to provide more definite information regarding the location of forest tree species in South Carolina. They show where selected species of commercial importance occur and, what is more important from an industrial standpoint, the areas of dense concentration. Forest industries can thus avoid the expense of wide reconnaissance and can concentrate their wood procurement activities in the most favorable localities.

METHOD OF CONSTRUCTING MAPS

The sample plots established in 1934 and 1936 by the Forest Survey in the comprehensive inventory of the forest resources of South Carolina have been used in the construction of these maps. The plots were located at intervals of one-eighth of a mile on parallel compass lines 10 miles apart extending across each of the survey units into which the state was divided (fig. 1). The data recorded on each forest plot included a brief over-all description of the forest stand and a tally of the species, number, and size of all forest trees one inch and larger in diameter at breast height.

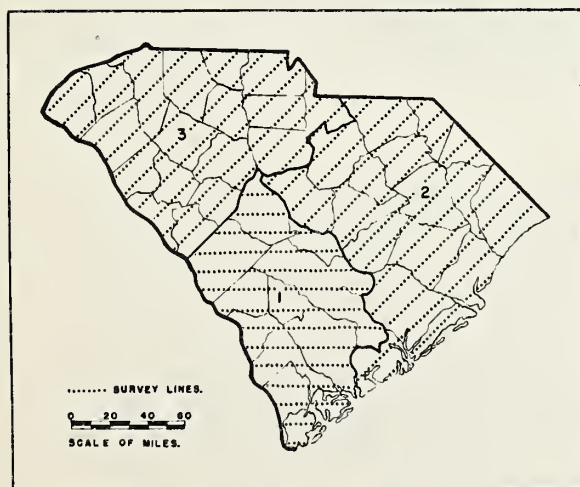


FIGURE 1.—APPROXIMATE LOCATION OF SURVEY LINES IN SOUTH CAROLINA.

This procedure gave an accurate picture of the timber stand on each forest plot, but because of the necessity for using a sampling method rather than a 100-percent tally of all forest land, each plot represents about 800 acres of forest. Obviously many local concentrations of timber could not be sampled and the maps are therefore not reliable for locating timber on small ownerships. Nearly 24,000 uniformly distributed plots in South Carolina do provide, however, a dependable measure of the commercial concentration of certain species and sizes within counties.

On each map the total volume of sound trees is shown by diameter-class for each unit and for the state. The volume of the under-sawlog-size trees is given in cords and the net volume of saw-timber material is given in board feet measured by the International $\frac{1}{4}$ -inch rule, a close approximation of green lumber tally. In a few units the volume of certain species is insignificant and is not shown separately.

The accompanying maps are of two distinct kinds; those based upon forest types and those based upon species and diameter-class. They are described as follows.

Maps Based on Forest Types

The maps showing the distribution of loblolly, shortleaf, longleaf, slash, and Virginia pines are based upon forest types. That is, every dot represents a forest plot on which the designated pine type is predominant. On the map showing the distribution of loblolly pine in South Carolina, for example, each dot is a forest plot typed in the field as loblolly pine. Other pine species may have been present upon the plot but not in sufficient quantity to influence the type classification. This method delineates the area dominated by a particular pine species and is not intended to indicate the maximum range of any one species.

Maps Based on Species and Diameter Class

The maps showing the distribution of redcedar, cypress, red and white oaks, hickory, sweetgum, blackgum and tupelo, and yellowpoplar are based upon the occurrence of individual trees on the sample plot. For example, each dot on the map showing the distribution of cypress represents a plot on which there was at least one sound cypress tree 12.0 inches or larger in diameter at breast height. On many of these plots there were undoubtedly several large cypresses. As every species was not plotted uniformly in regard to the number of individual trees per plot or size-class represented, the basis is given in the legend of each map. The distribution of oaks, gums, and yellowpoplar 18.0 inches d.b.h. and larger has been presented to facilitate industrial use of these premium sizes.

THE FORESTS OF SOUTH CAROLINA^{1/}

Species

In South Carolina forests occupy about 11 million acres, 55 percent of all the land. Loblolly pine greatly exceeds the other species in abundance, particularly in the Coastal Plain. Shortleaf pine, second in volume rating, is concentrated in the Piedmont but occurs throughout

^{1/}A detailed description of South Carolina's forest resources and industries is presented in the Forest Survey Releases listed on page 3. Copies of these releases may be obtained by writing the Appalachian Forest Experiment Station, Asheville, North Carolina.

the state. Longleaf pine is common in the Coastal Plain but comparatively rare elsewhere. Slash pine grows in the extreme southern portion and Virginia pine in the extreme northwestern portion of the state but the quantity of both these species is small.

Sweetgum leads the hardwoods in board-foot volume and is especially abundant in the northern part of the Coastal Plain. Blackgum and tupelo also make up a high proportion of the stand in that area and to a smaller degree in the entire Coastal region. The red and white oaks are distributed throughout the state but attain their best development along the larger rivers near the coast. Many other hardwoods are common, notably yellowpoplar, ash, and several species of hickory.

Forest Types

The pine types occupy 73 percent of the forest land. There are about four million acres of loblolly pine-hardwoods, two million acres of shortleaf pine-hardwoods including Virginia pine, and 1.8 million acres of longleaf and slash pine.

Hardwood types occupy the remaining 2.9 million acres of the forest land. The bottom-land hardwoods, 2.2 million acres in extent, are located in extensive bottom lands of the Coastal Plain. They are an important component of the forest because they contain a high proportion of old-growth material. The upland hardwoods type, which occupies 700,000 acres in the Piedmont and Coastal Plain, is usually composed of oaks, hickories and yellowpoplars in mixture with other hardwoods of less common occurrence.

Forest Conditions

About 15 percent of the forest land is stocked with old-growth timber, 43 percent is stocked with sawlog-size second growth, 41 percent with under-sawlog-size second growth, and one percent is clearcut and not re-stocking. Almost one-half of the 1.6 million acres of old growth are bottom-land hardwoods. The 4.6 million acres of second-growth saw timber are distributed rather uniformly throughout the state and are about one-half loblolly pine-hardwoods. One-third of the 4.4 million acres of young second growth are also stocked with loblolly pine. Nearly all of the 124,000 acres of clear-cut land are located in the northern part of the Coastal Plain.

FOREST SURVEY RELEASES PERTAINING TO SOUTH CAROLINA

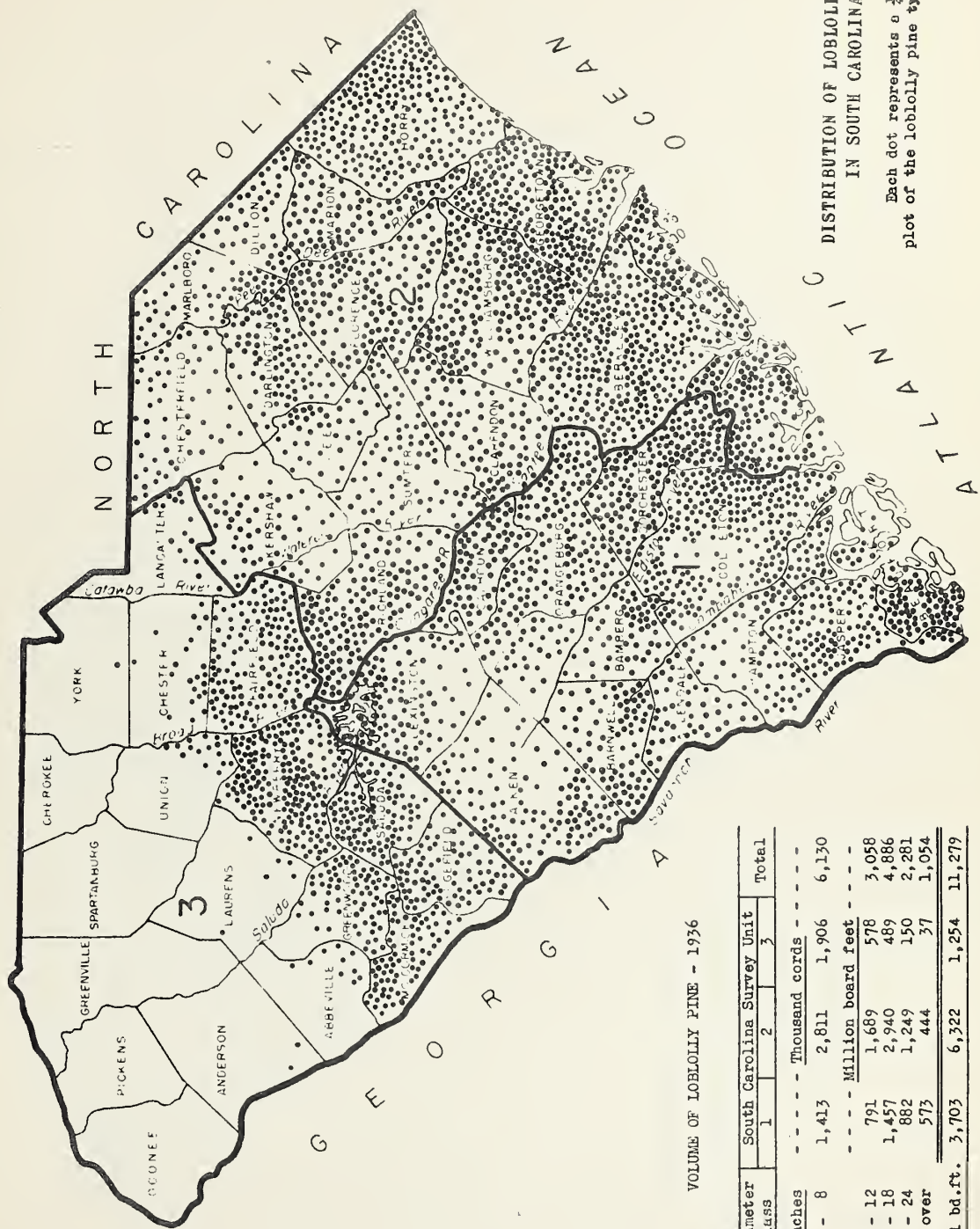
Forest Resources of the Northern Coastal Plain of South Carolina.
Forest Survey Release No. 1, July 15, 1939. (Survey Unit No. 2).

Forest Resources of the Piedmont Region of South Carolina.
Forest Survey Release No. 2, September 1, 1939. (Survey Unit No. 3).

Forest Resources of the Southern Coastal Plain of South Carolina.
Forest Survey Release No. 3, December 1, 1939. (Survey Unit No. 1).

DISTRIBUTION MAPS OF COMMERCIAL FOREST TREES

<u>Map</u>	<u>Tree Species Included</u>
Loblolly pine	- Loblolly pine
Shortleaf pine	- Shortleaf pine
Longleaf pine	- Longleaf pine
Slash pine	- Slash pine
Virginia pine	- Virginia pine
Redcedar	- Eastern redcedar
Cypress	- Baldcypress, pondcypress
Red oak	- Black, scarlet, water, willow, southern red, cherrybark, and northern red oak
White oak	- White oak, swamp chestnut oak
Hickory	- Bitternut, water, shagbark, mockernut, and pignut hickory
Sweetgum	- Sweetgum
Blackgum	- Blackgum, water tupelo
Yellowpoplar	- Yellowpoplar

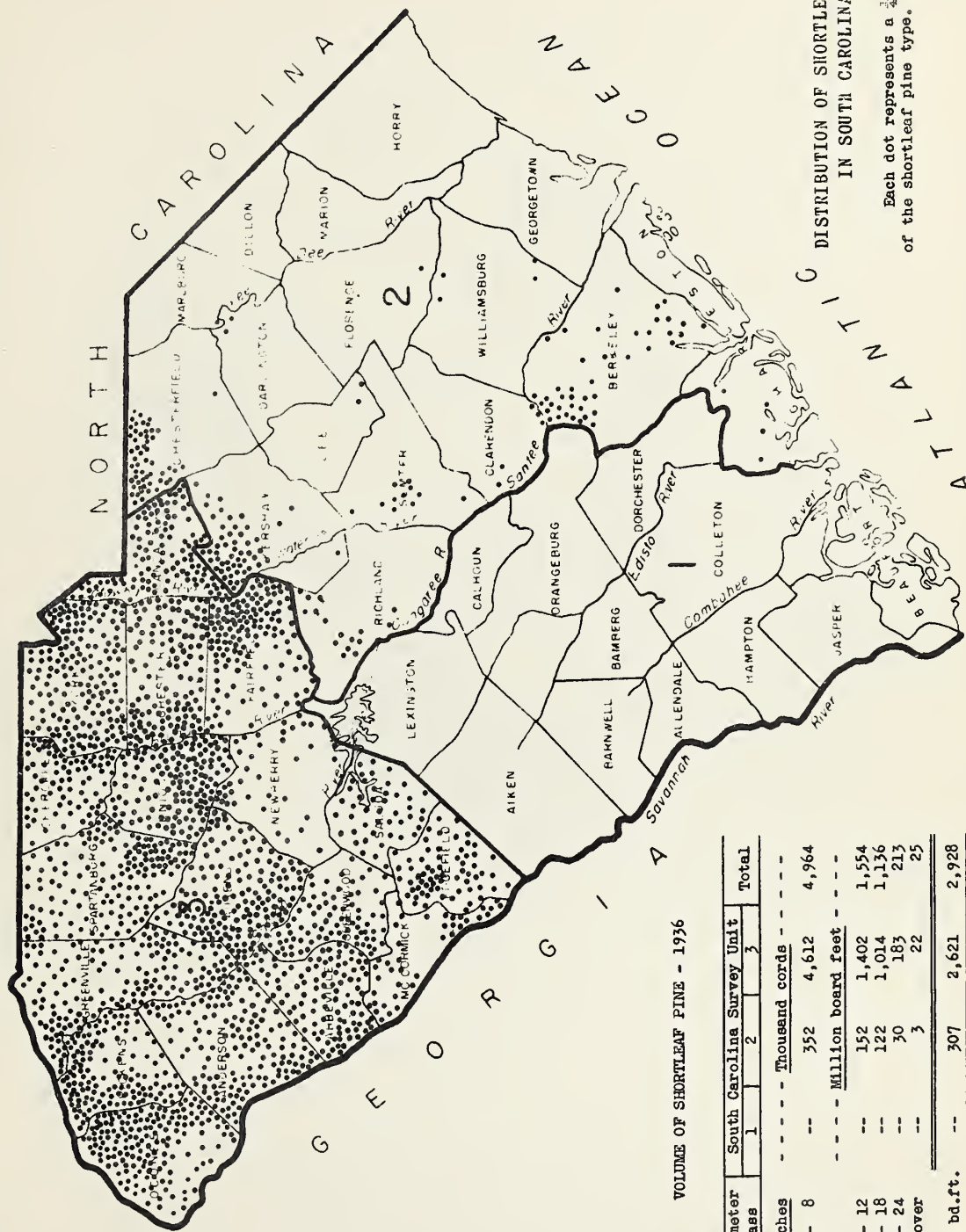


DISTRIBUTION OF LOBLOLLY PINE
IN SOUTH CAROLINA

Each dot represents a 1/4-acre
plot of the loblolly pine type.

VOLUME OF LOBLOLLY PINE - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	1,413	2,811	1,906	6,130
	Million board feet			
10 - 12	791	1,689	578	3,058
14 - 18	1,457	2,940	489	4,886
20 - 24	882	1,249	150	2,281
26 & over	573	444	37	1,054
Total bd. ft.	3,703	6,322	1,254	11,279

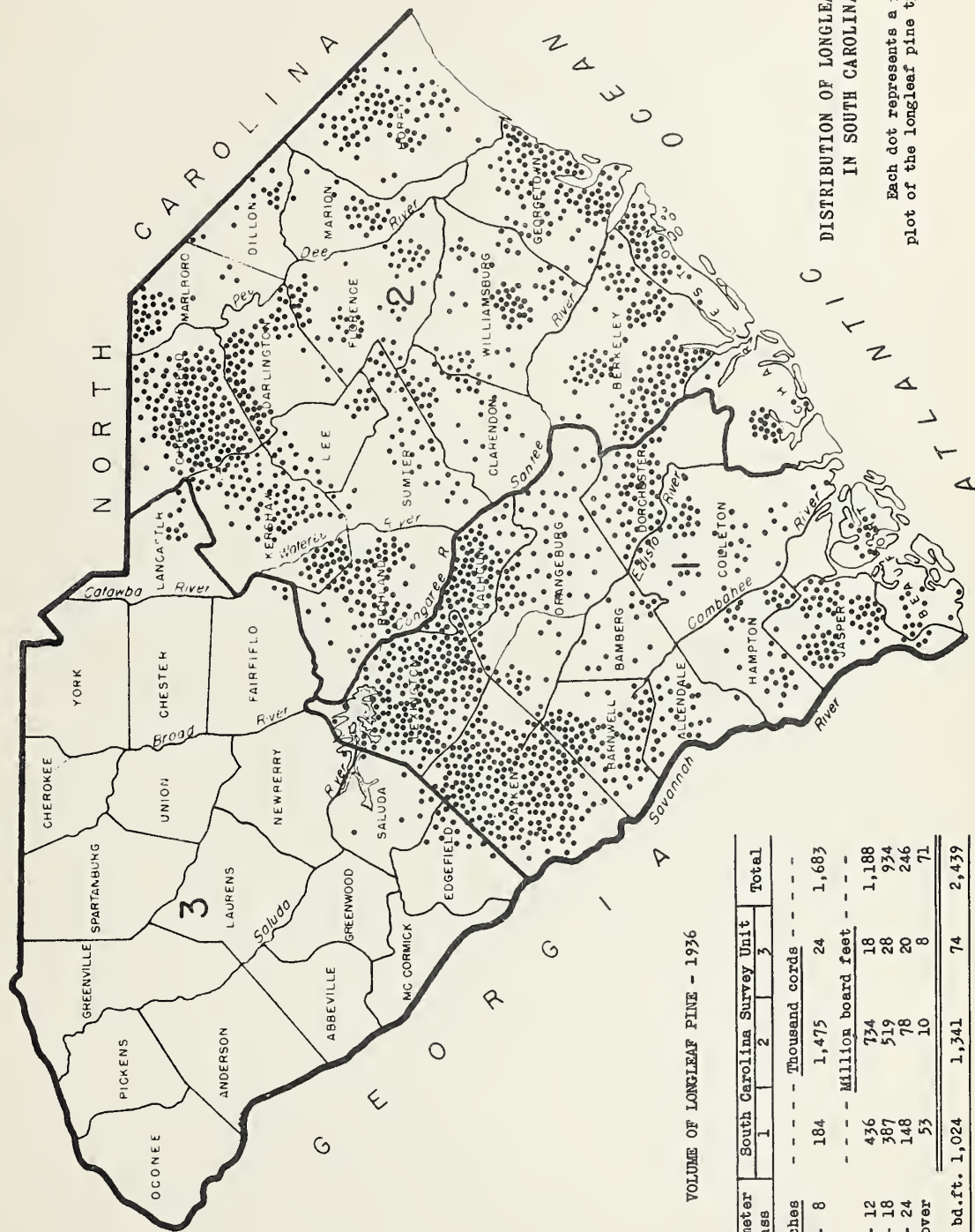


VOLUME OF SHORTLEAF PINE - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	--	352	4,612	4,964
	Million board feet			
10 - 12	--	152	1,402	1,554
14 - 18	--	122	1,014	1,136
20 - 24	--	30	183	213
26 & over	--	3	22	25
Total bd.ft.	--	307	2,621	2,928

DISTRIBUTION OF SHORTLEAF PINE IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ -acre plot
of the shortleaf pine type.

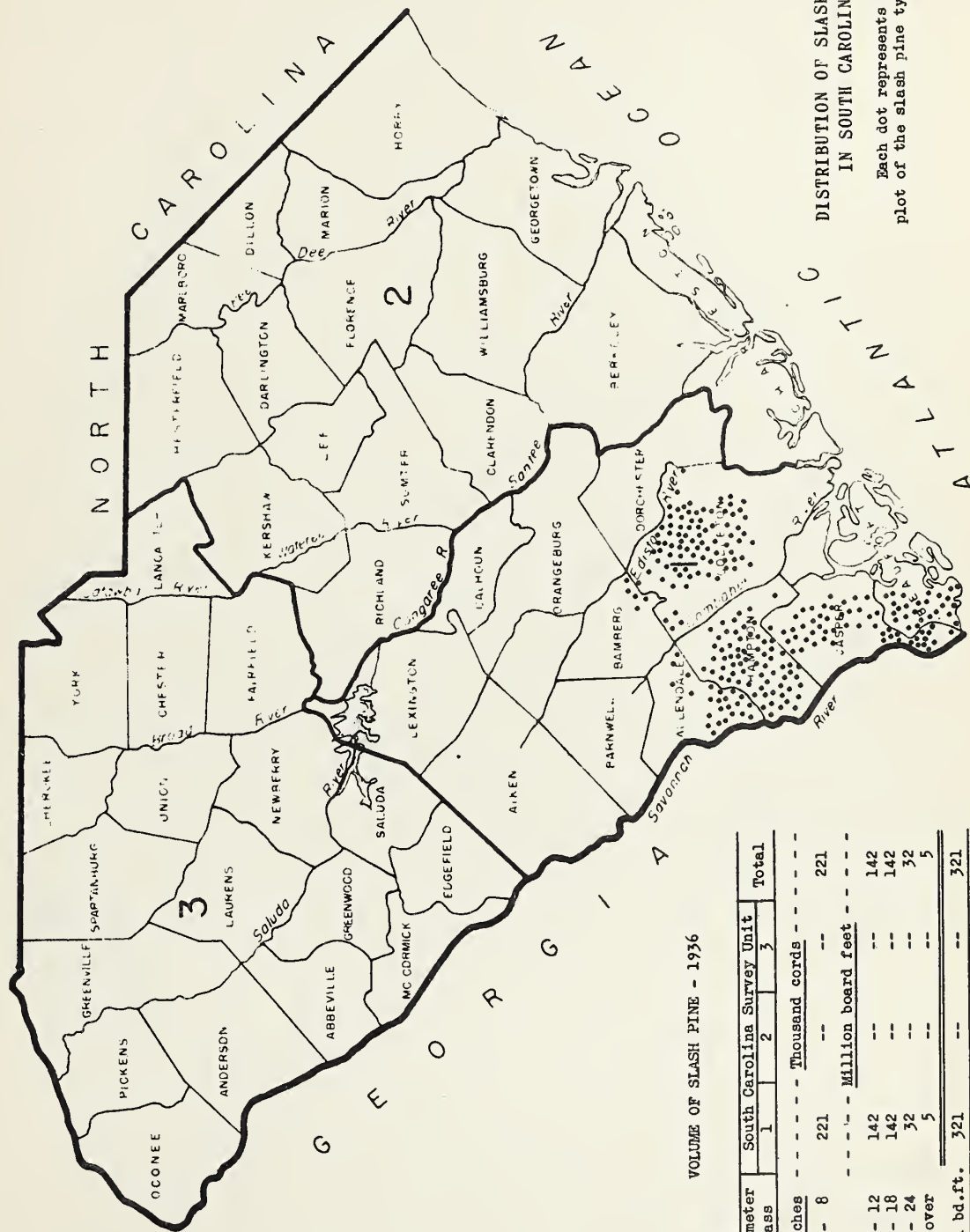


DISTRIBUTION OF LONGLEAF PINE IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ -acre
plot of the longleaf pine type.

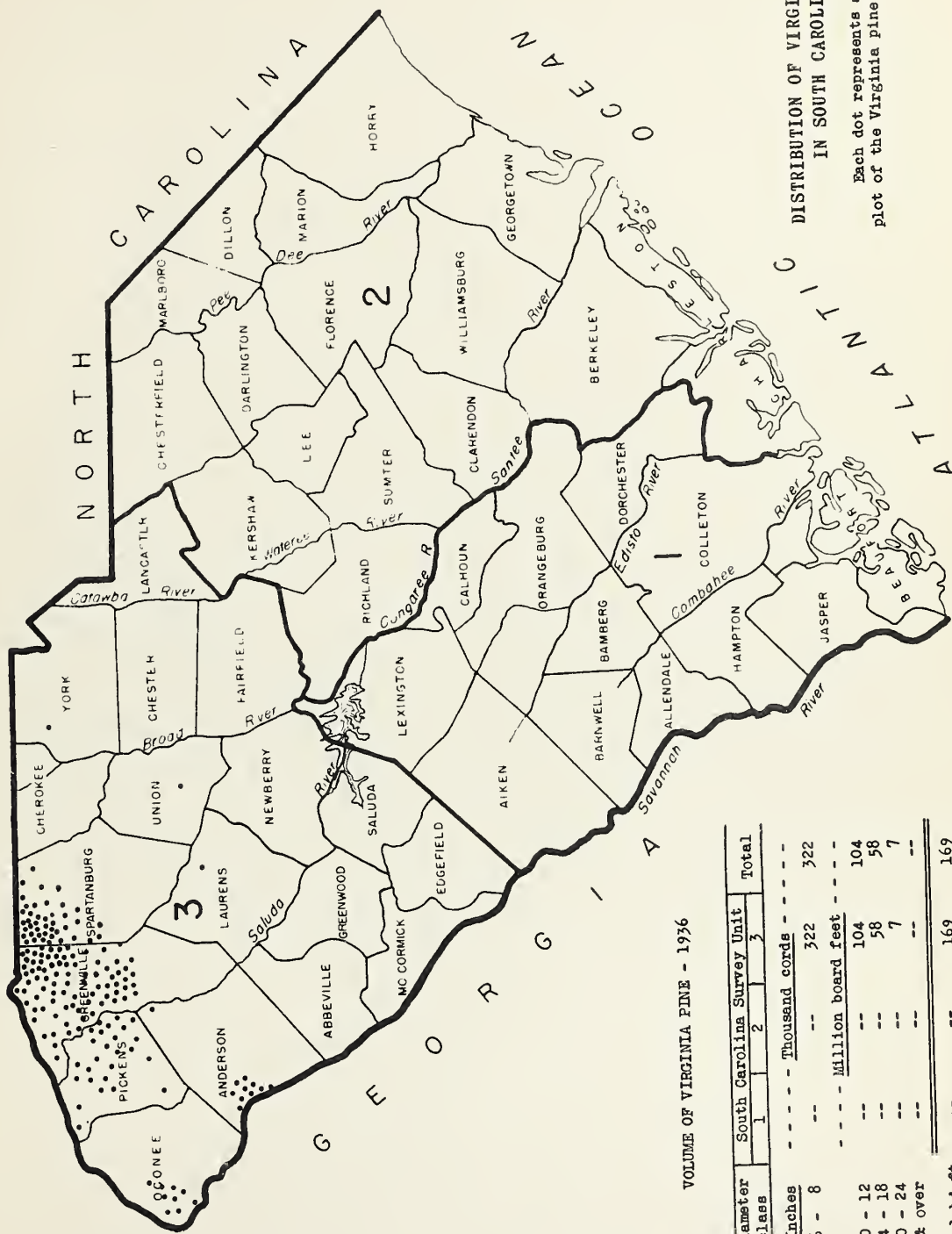
VOLUME OF LONGLEAF PINE - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	----- Thousand cords -----			
6 - 8	184	1,475	24	1,683
	----- Million board feet -----			
10 - 12	436	734	18	1,188
14 - 18	387	519	28	934
20 - 24	148	78	20	246
26 & over	55	10	8	71
Total bd.ft.	1,024	1,341	74	2,439



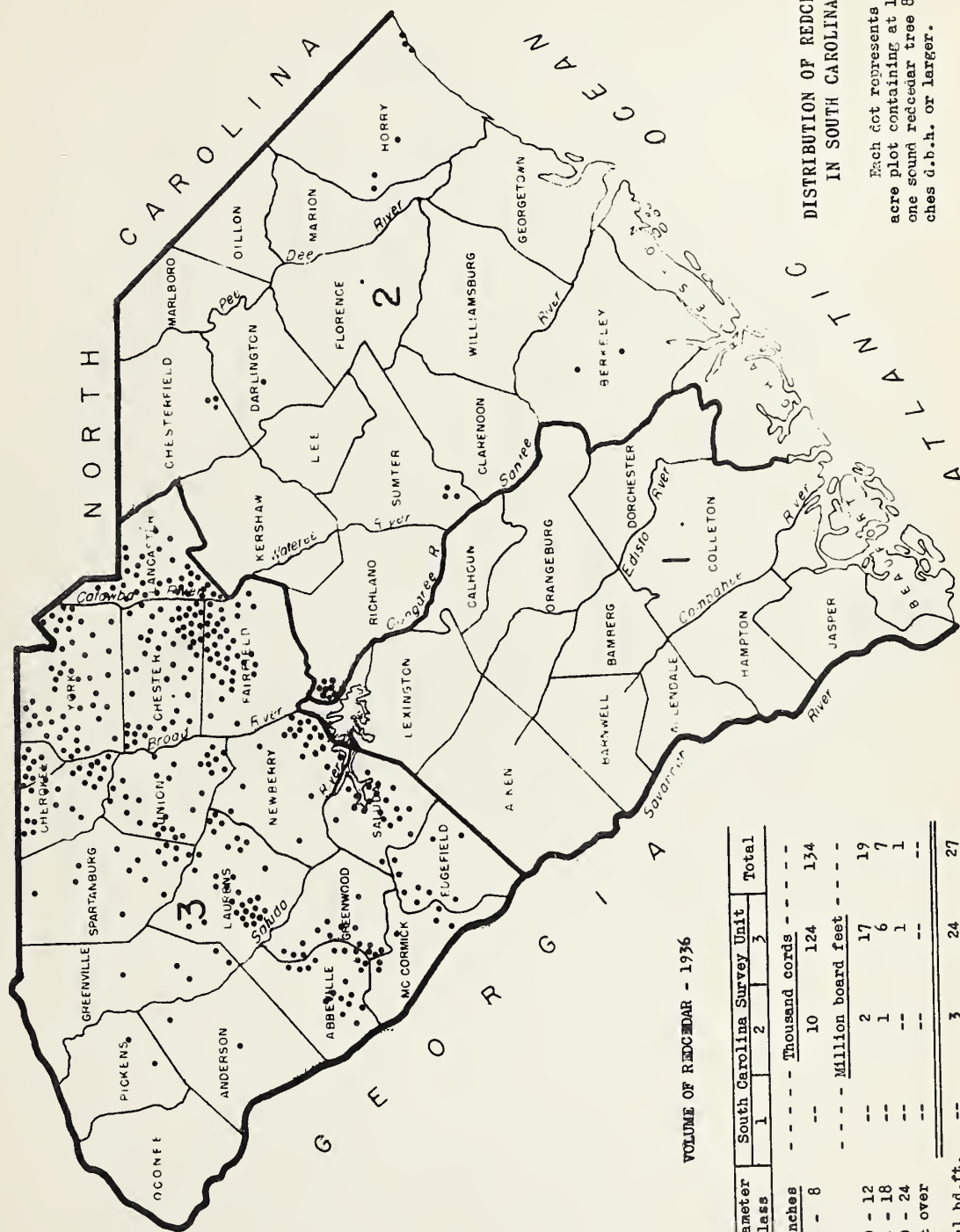
VOLUME OF SLASH PINE - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	221	--	--	221
Million board feet				
10 - 12	142	--	--	142
14 - 18	142	--	--	142
20 - 24	32	--	--	32
26 & over	5	--	--	5
Total bd.ft.	321	--	--	321



VOLUME OF VIRGINIA PINE - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	---	---	---	---
6 - 8	--	--	322	322
	---	---	Thousand cords	---
10 - 12	--	--	104	104
14 - 18	--	--	58	58
20 - 24	--	--	7	7
26 & over	--	--	---	---
Total bd.ft.	--	--	169	169

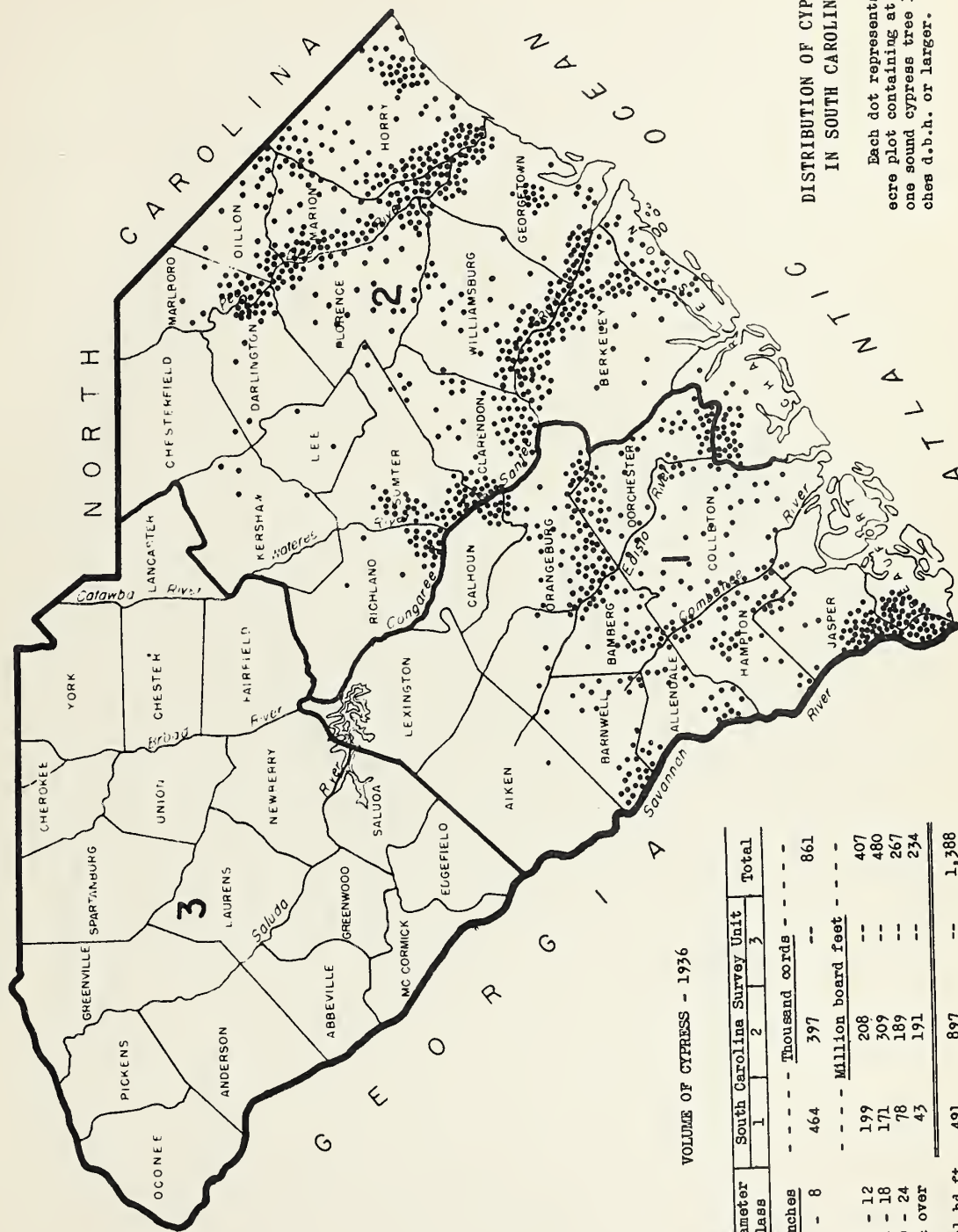


DISTRIBUTION OF REDCEDAR IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ acre plot containing at least one sound redcedar tree 8 inches d.b.h. or larger.

VOLUME OF REDCEDAR - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	--	10	124	134
10 - 12	--	2	17	19
14 - 18	--	1	6	7
20 - 24	--	--	1	1
26 & over	--	--	--	--
Total bd.ft.	--	3	24	27

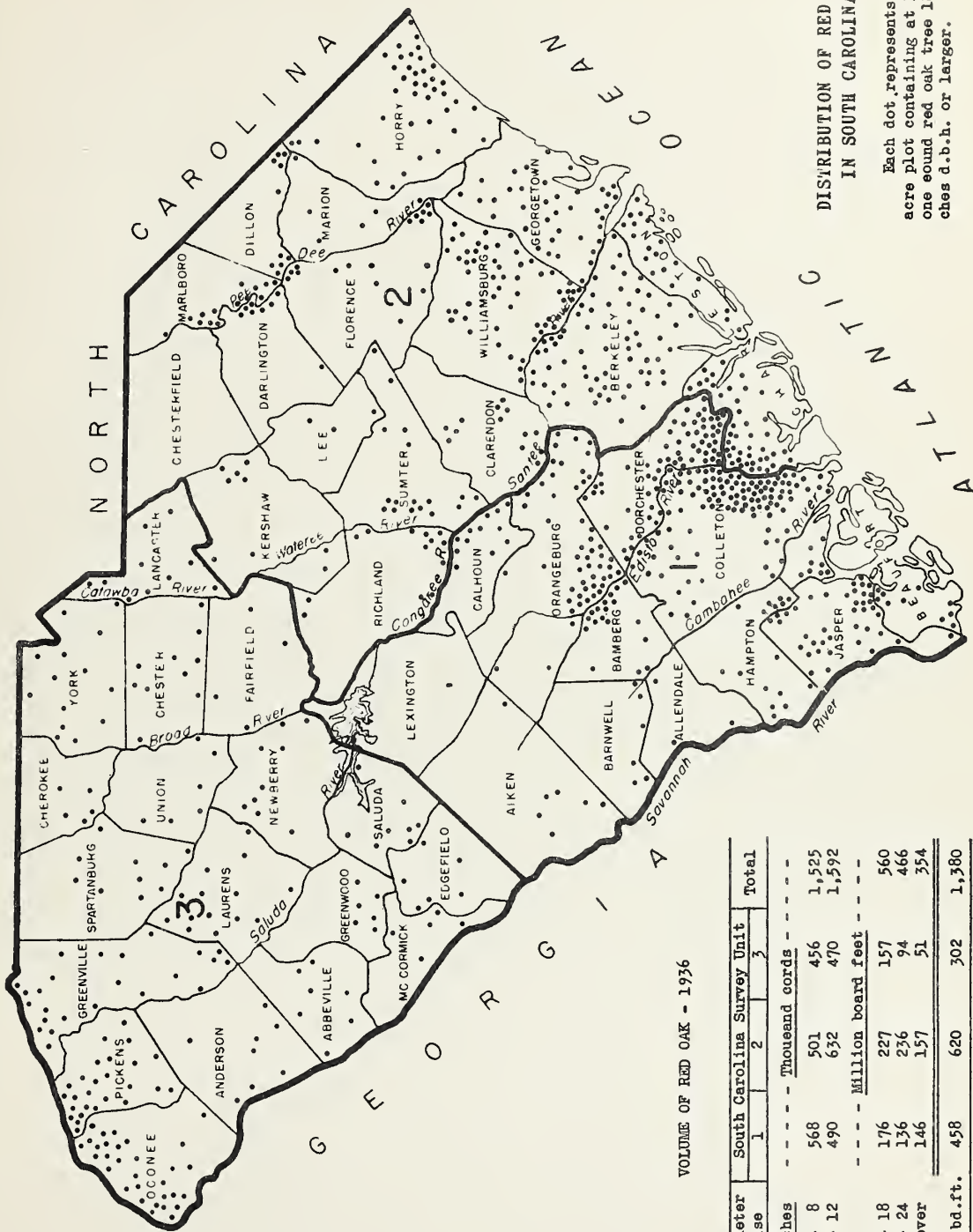


DISTRIBUTION OF CYPRESS IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ acre plot containing at least one sound cypress tree 12 inches d.b.h. or larger.

VOLUME OF CYPRESS - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	464	397	--	861
	Million board feet			
10 - 12	199	208	--	407
14 - 18	171	309	--	480
20 - 24	78	189	--	267
26 & over	43	191	--	234
Total bd.ft.	491	897	--	1,388

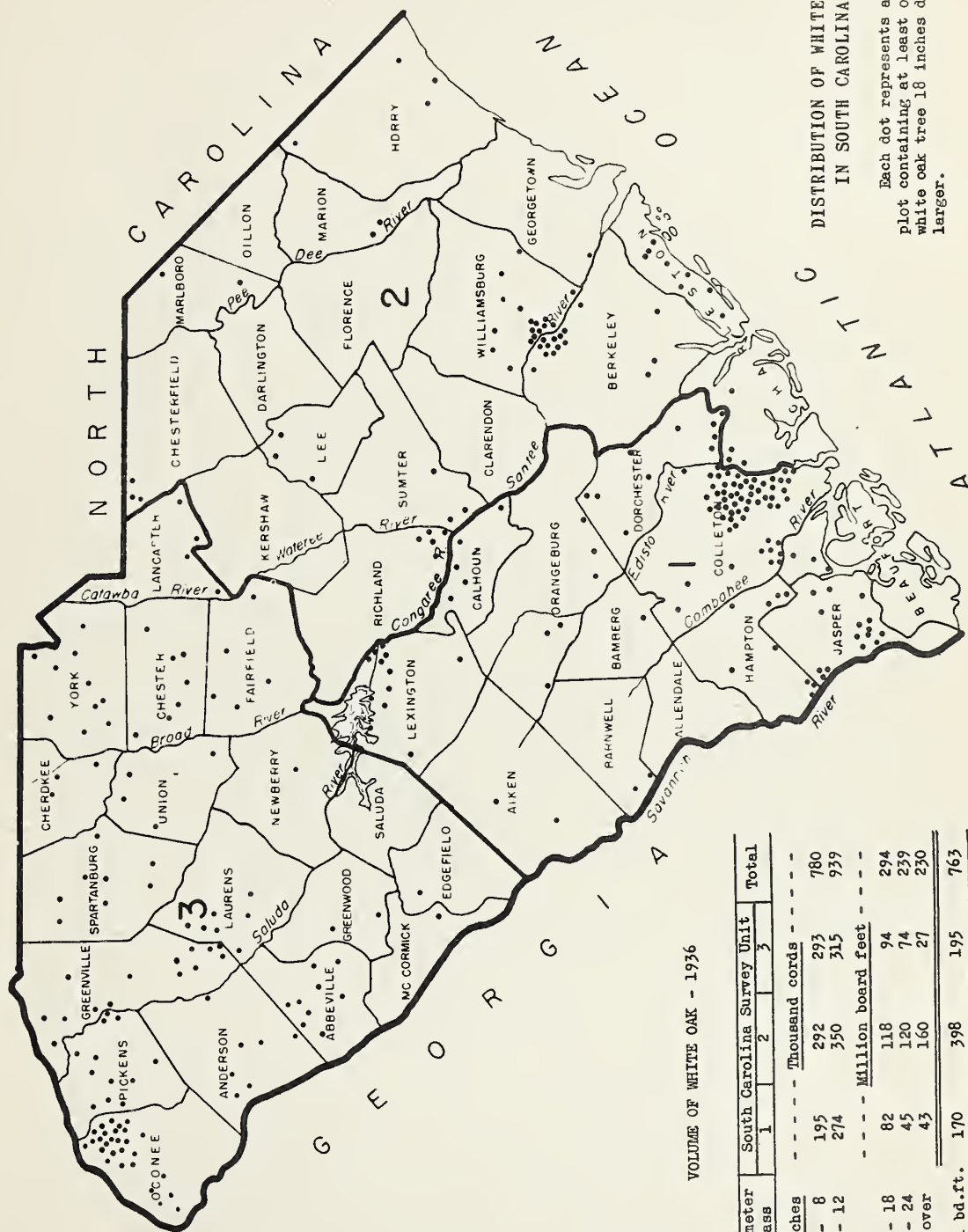


DISTRIBUTION OF RED OAK IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ acre plot containing at least one sound red oak tree 18 inches d.b.h. or larger.

VOLUME OF RED OAK - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	568	501	456	1,525
10 - 12	490	632	470	1,592
	Million board feet			
14 - 18	176	227	157	560
20 - 24	136	236	94	466
26 & over	146	157	51	354
Total bd.ft.	458	620	302	1,380

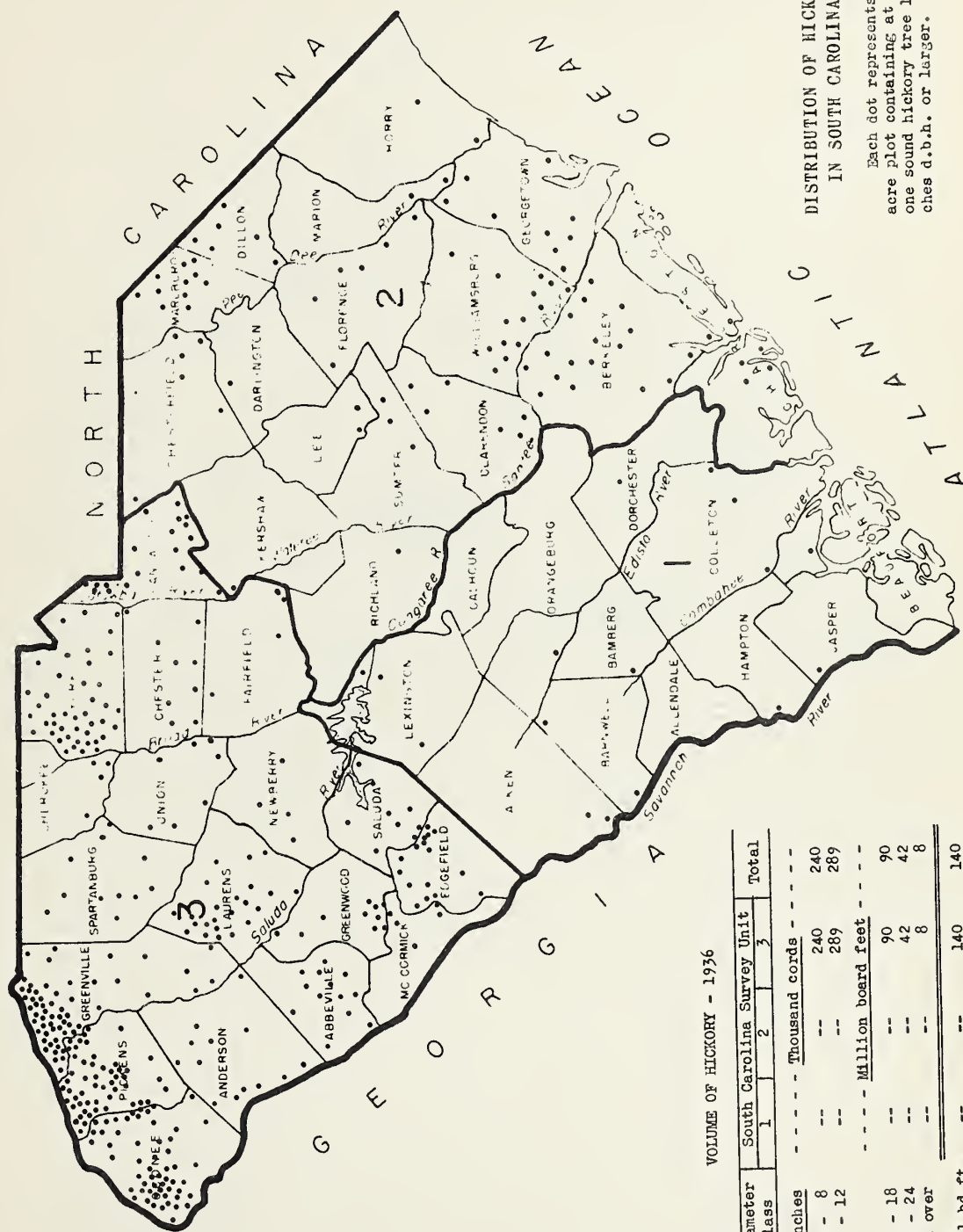


DISTRIBUTION OF WHITE OAK
IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ -acre plot containing at least one sound white oak tree 18 inches d.b.h. or larger.

VOLUME OF WHITE OAK - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	----- Thousand cords -----			
6 - 8	195	292	293	780
10 - 12	274	350	315	939
	----- Million board feet -----			
14 - 18	82	118	94	294
20 - 24	45	120	74	239
26 & over	43	160	27	230
Total bd.ft.	170	398	195	763

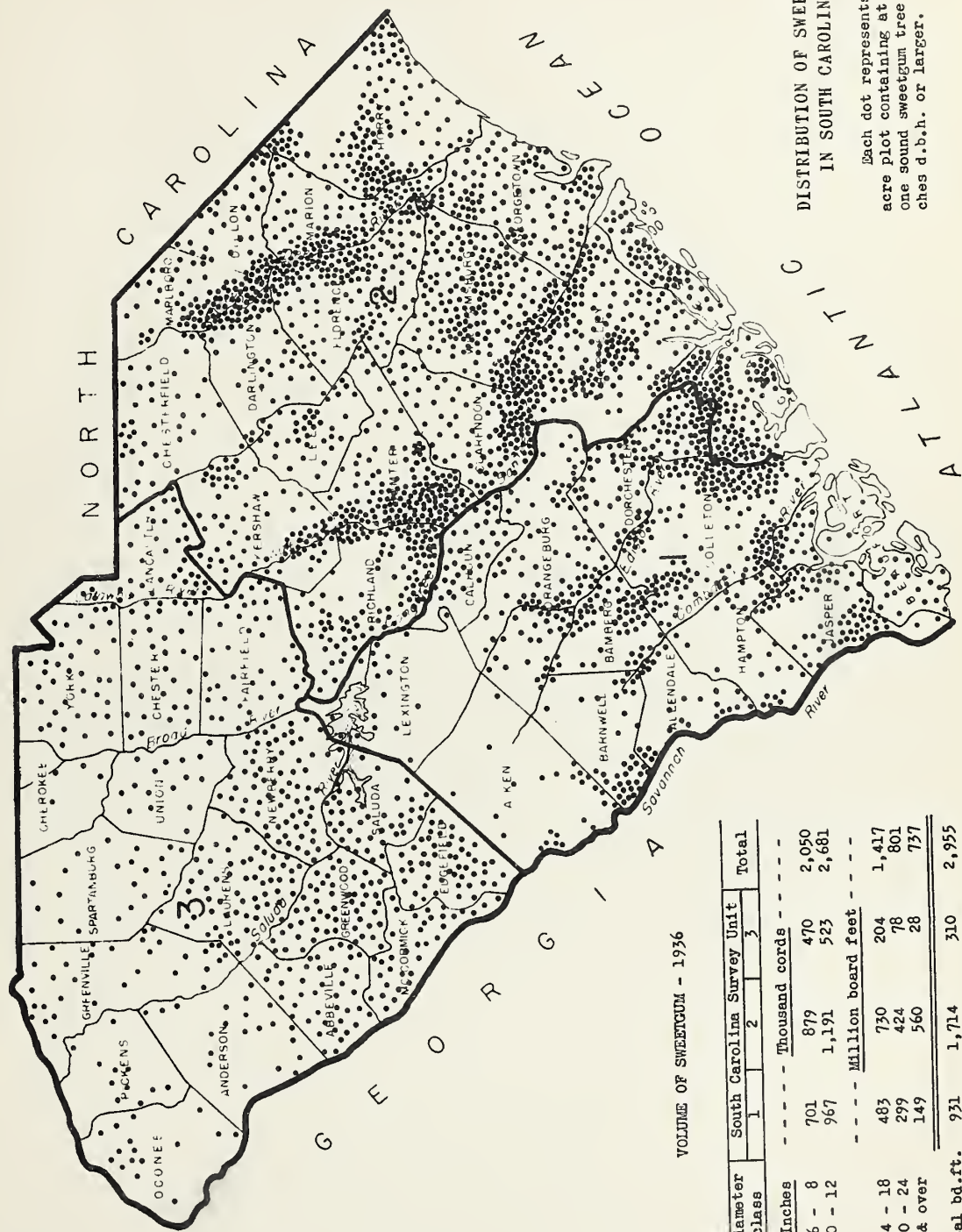


DISTRIBUTION OF HICKORY IN SOUTH CAROLINA

Each dot represents a 2-acre plot containing at least one sound hickory tree 12 inches d.b.h. or larger.

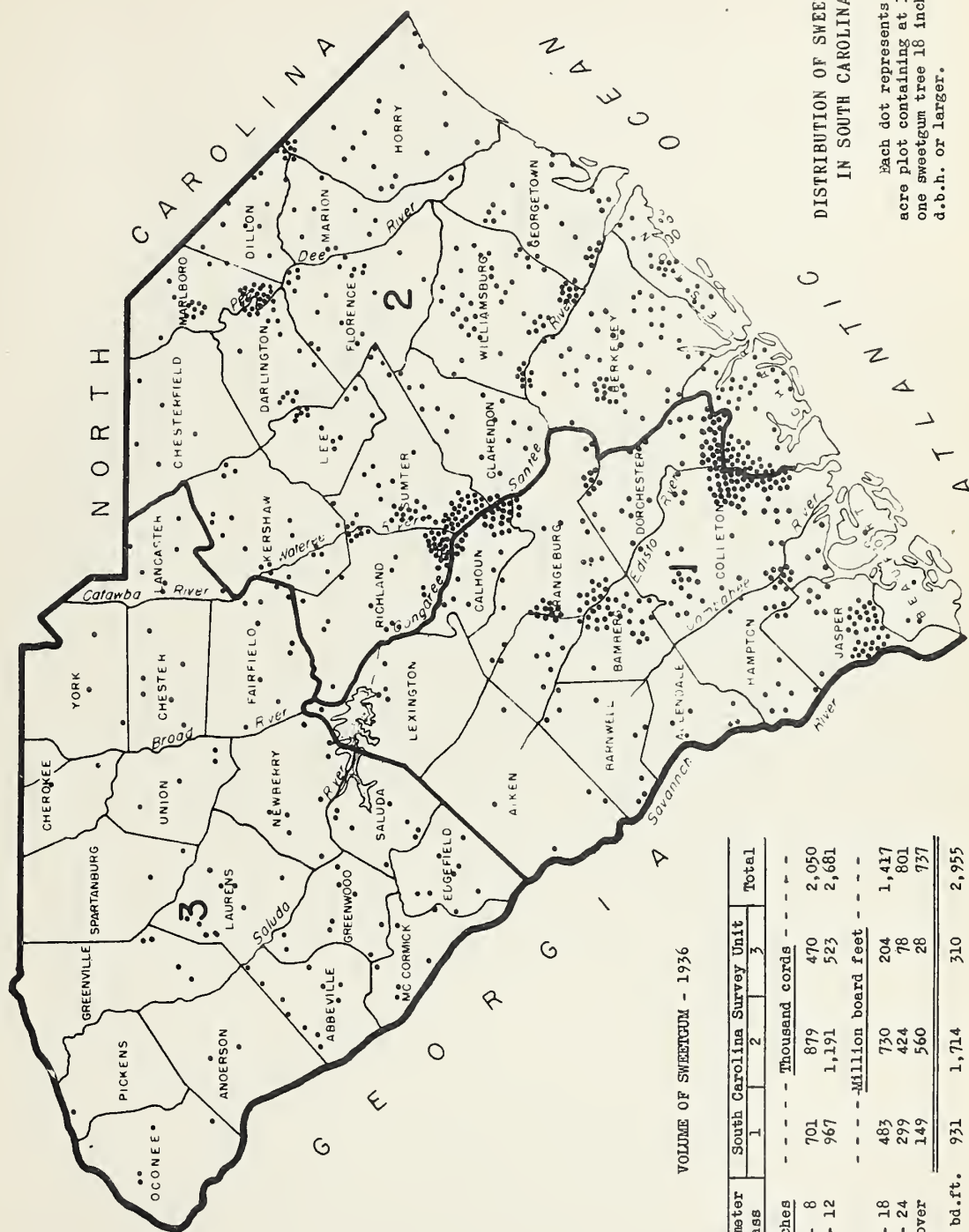
VOLUME OF HICKORY - 1936

Diameter class	South Carolina Survey Unit				Total
	1	2	3		
Inches	Thousand cords				
6 - 8	--	--	240		240
10 - 12	--	--	289		289
	Million board feet				
14 - 18	--	--	90		90
20 - 24	--	--	42		42
26 & over	--	--	8		8
Total bd.ft.	--	--	140		140



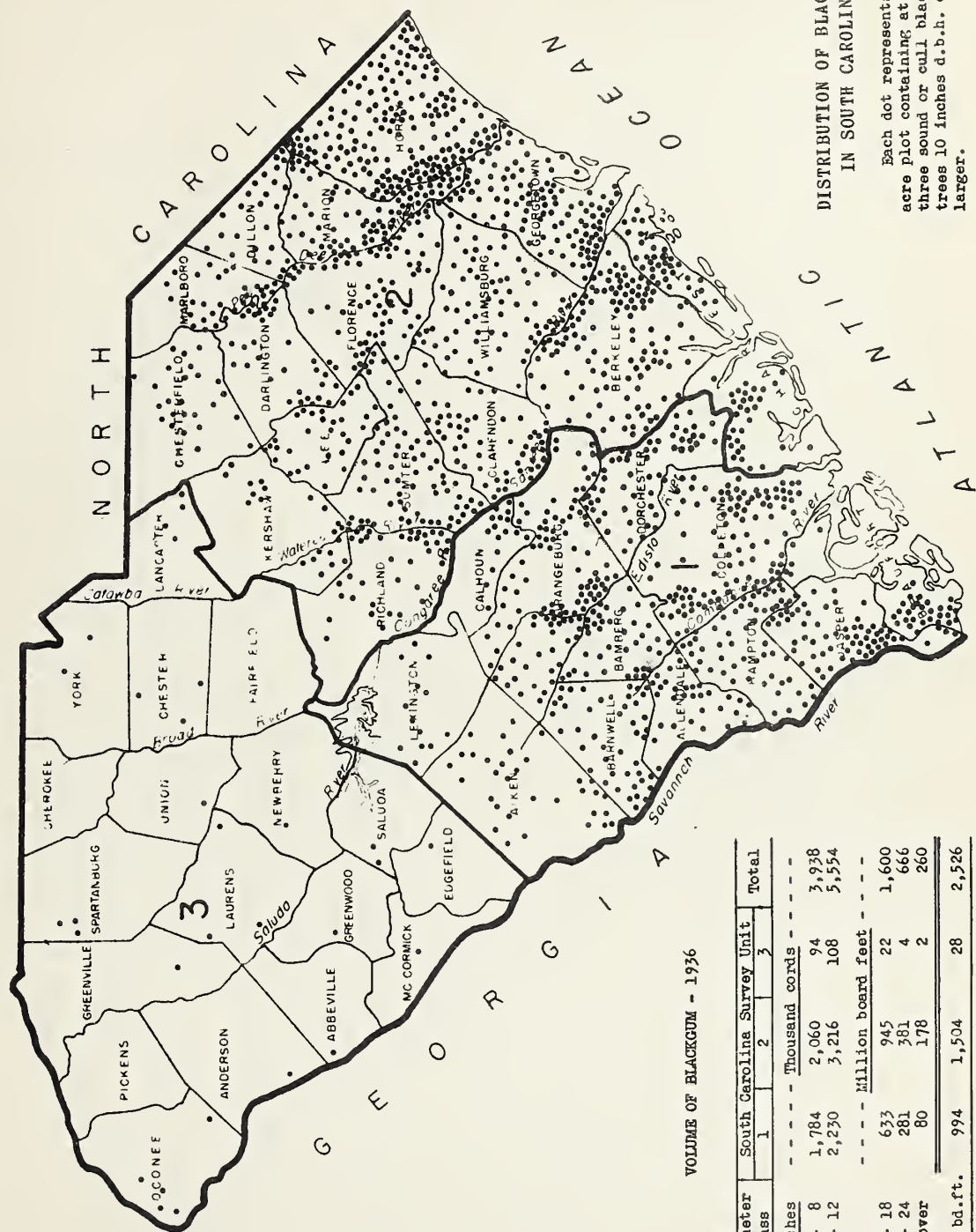
VOLUME OF SWEETGUM - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	----- Thousand cords -----			-----
6 - 8	701	879	470	2,050
10 - 12	967	1,191	523	2,681
	----- Million board feet -----			-----
14 - 18	483	730	204	1,417
20 - 24	299	424	78	801
26 & over	149	560	28	737
Total bd.ft.	931	1,714	310	2,955



VOLUME OF SWEETGUM - 1936

Diameter class	South Carolina Survey Unit			Total
Inches	1	2	3	
6 - 8	701	879	470	2,050
10 - 12	967	1,191	523	2,681
----- Million board feet -----				
14 - 18	483	730	204	1,417
20 - 24	299	424	78	801
26 & over	149	560	28	737
Total bd.ft.	931	1,714	310	2,955

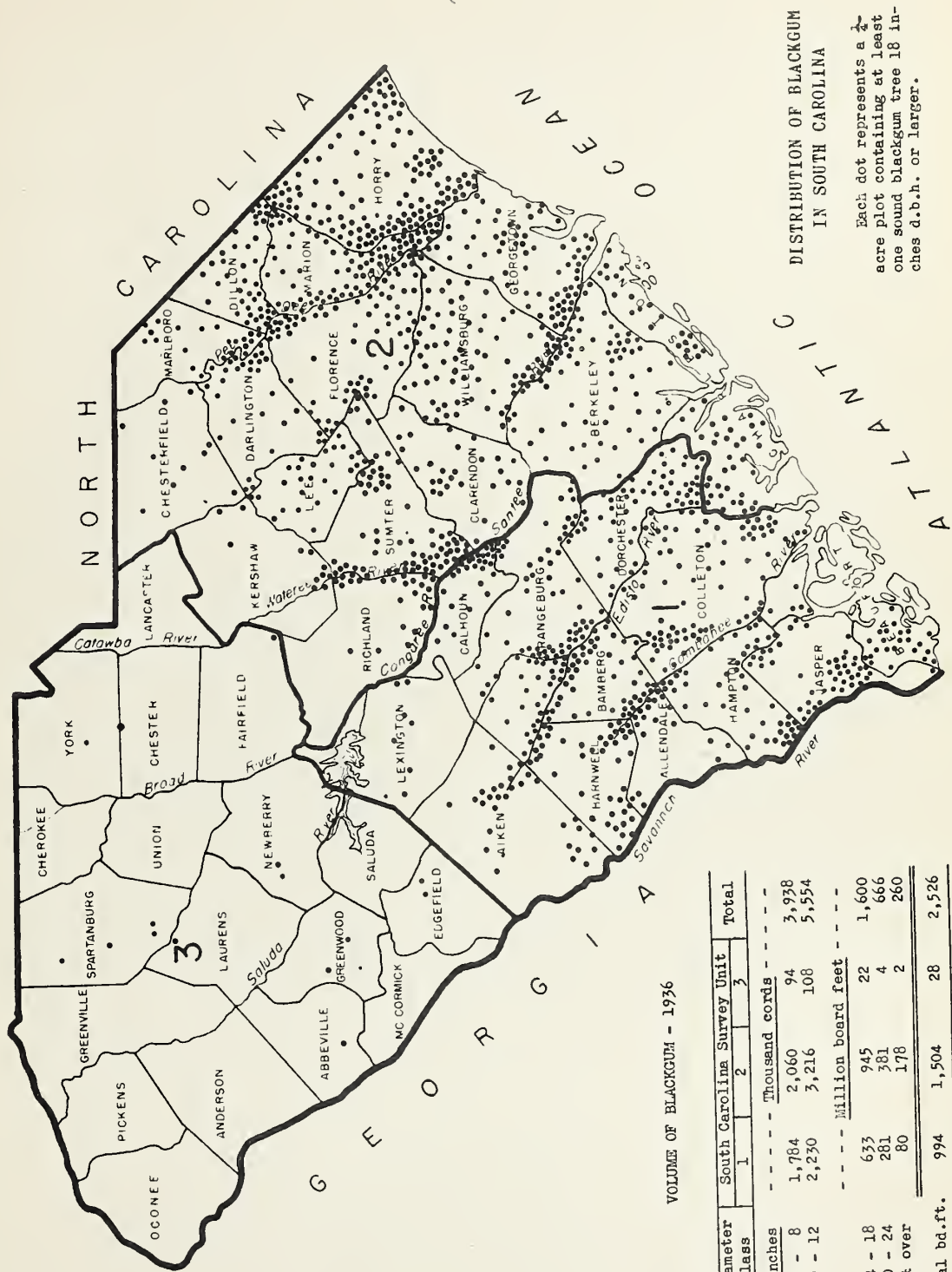


DISTRIBUTION OF BLACKGUM IN SOUTH CAROLINA

Each dot represents a $\frac{1}{4}$ -acre plot containing at least three sound or cull blackgum trees 10 inches d.b.h. or larger.

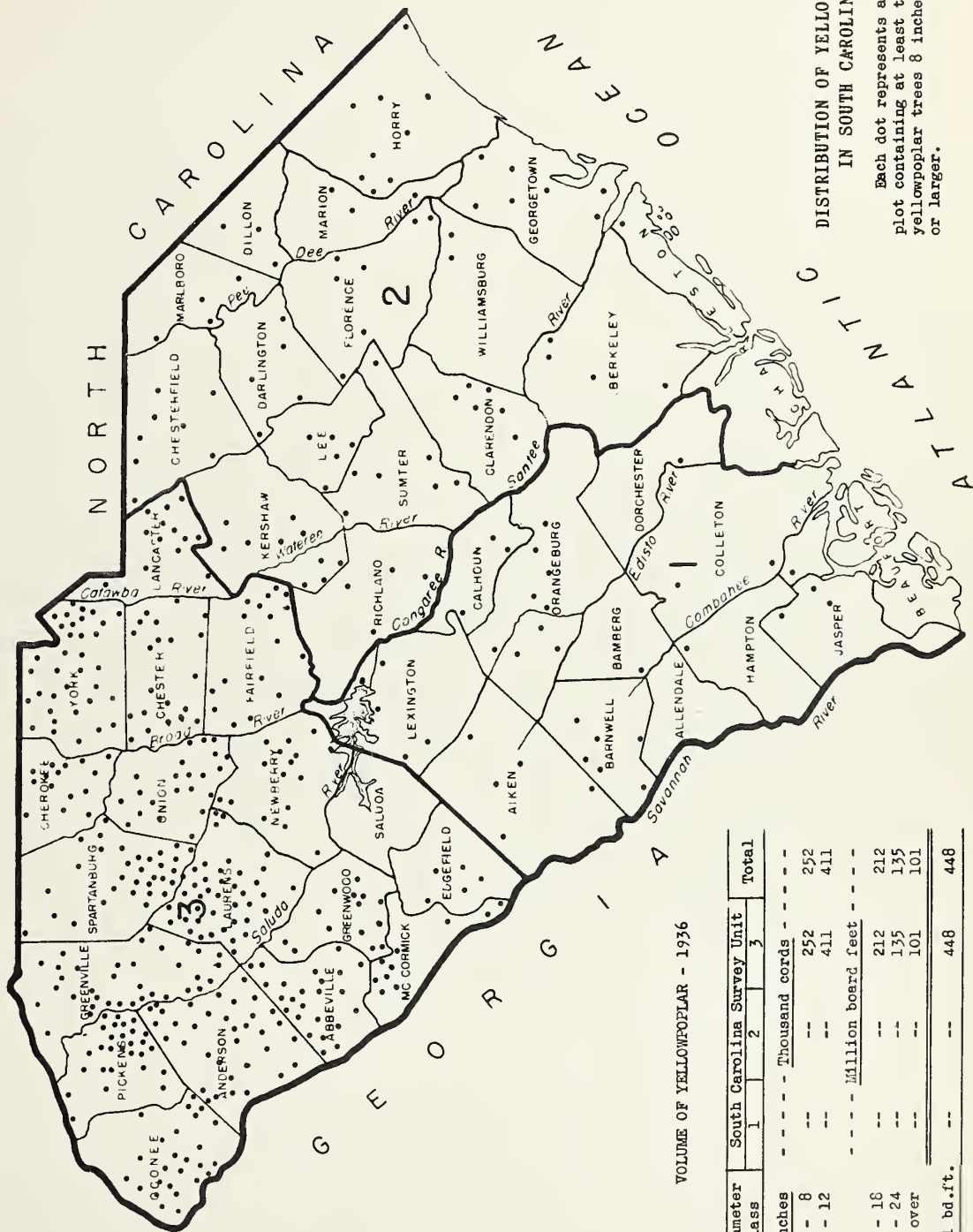
VOLUME OF BLACKGUM - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	1,784	2,060	94	3,938
10 - 12	2,230	3,216	108	5,554
	Million board feet			
14 - 18	633	945	22	1,600
20 - 24	281	381	4	666
26 & over	80	178	2	260
Total bd.ft.	994	1,504	28	2,526



VOLUME OF BLACKGUM - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	--- Thousand cords ---			---
6 - 8	1,784	2,060	94	3,938
10 - 12	2,230	3,216	108	5,554
	--- Million board feet ---			---
14 - 18	633	945	22	1,600
20 - 24	281	381	4	666
26 & over	80	178	2	260
Total bd.ft.	994	1,504	28	2,526



VOLUME OF YELLOWPOPLAR - 1936

Diameter class	South Carolina Survey Unit			Total
	1	2	3	
Inches	Thousand cords			
6 - 8	--	--	252	252
10 - 12	--	--	411	411
	Million board feet			
14 - 18	--	--	212	212
20 - 24	--	--	135	135
26 & over	--	--	101	101
Total bd.ft.	--	--	448	448

